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ABSTRACT

During the 1983-1985 academic years, the Nebraska Prevention Center for Alcohol and Drug Abuse cooperated with the Omaha Public Schools to assess the effects of the videotape-based educational program "Resisting Pressures to Drink and Drive." This report is based upon curriculum activities of the 1983-1984 academic year and presents an assessment of the long-term effects of those activities in 1985. This educational program was presented in 51 Social Studies classrooms. The research project described in this report addresses the critical problem of high rates of alcohol-related automobile accidents involving adolescents. In response to this ongoing situation, a videotape-based curriculum was developed to help ninth grade students resist pressures to drink; drink and drive; and ride with a driver who had been drinking. The curriculum was targeted at 9th-grade students since education on these topics is relevant to students who are about to reach legal driving age and who also have relatively easy access to alcohol. As in the first year evaluation, the data were aggregated and analyzed by classroom. Curricula based on the principle of educational immunization are not necessarily expected to elicit immediate changes in behavior. Yet, according to the methodology used in this analysis, the curriculum did affect risk-taking behavior significantly after 1 year. (LLL)

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TEACHING STUDENTS TO RESIST PRESSURES TO DRINK AND DRIVE SECOND YEAR EVALUATION SOCIAL STUDIES CLASSES

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TEACHING STUDENTS TO RESIST PRESSURES TO DRINK AND DRIVE SECOND YEAR EVALUATION SOCIAL STUDIES CLASSES

During the 1983-1984 and the 1984-1985 academic years, the Nebraska Prevention Center for Alchohol and Drug Abuse cooperated with the Omaha Public Schools to assess the effects of the videotape-based educational program "Resisting Pressures to Drink and Drive." This report is based upon curriculum activities of the 1983-1984 year and presents an assessment of the long-term effects of those activities in 1985. This educational program was presented in the Social Studies classrooms in the spring of 1984; the results were measured that same spring immediately following the teaching of the curriculum and the follow-up results reported here were measured in the spring of 1985, one year later.

BACKGROUND

The research project described in this report addresses the critical problem of high rates of alcohol-related automobile accidents involving adolescents. According to the 1986 report of the Accident Records Section, Safety Division, Nebraska Departmentment of Roads, of a total 226 fatal auto accidents which estimated the presence or absence of alcohol some 116 (51%) involved alcohol. Half of these alcohol related accidents involved a driver between the ages of 15 and 24. Half of those who died were also between the ages of 15 and 24. Of these 84% were male.

Fatal automobile accidents in Nebraska involve alcohol, young drivers and deaths of young males in disproportionate numbers. As Table 1 shows, this is nothing new. Similar results have been reported in Nebraska in 1985, 1984, and 1983. This phenomenon is replicated in every state of the union.

TABLE 1
SUMMARY-NEBRASKA MOTOR VEHICLE TRAFFIC ACCIDENTS

Year	% All Fatalities Involving Alcohol*	% Alc.Fatalities Drivers 15-24	% Fatalities Ages 15-24	% Fatalities 15-24, Male
1986	51%	50%	50%	84%
1985	44%	37%	47%	83%
1984	43%	40%	42%	68%
1983	48%	49%	53%	80%

*Source: Standard Summary of Nebraska Motor Vehicle Traffic Accidents, 1983-1986. Accident Records Section, Safety Division, Nebraska Dept. of Roads. This percentage is derived from figures on fatalities in which it was apparent whether alcohol was involved or not. Such estimates were not made in a small
percentage of fatal accidentts.

In response to this ongoing situation, a videotape-based curriculum was developed by the Nebraska Prevention Center for Alcohol and Drug Abuse to help Nebraska ninth grade students resist pressures to (l) drink, (2) drink and drive, and (3) ride with a driver who had been drinking. The curriculum was targeted at ninth grade students since education on these topics is relevant to students who are about to reach legal driving age who also have relatively easy access to alcohol.

During the 1983-1984 and 1984-1985 academic years, the Nebraska Prevention Center for Alcohol and Drug Abuse cooperated with the Omaha Public Schools to assess the effects of the videotape-based educational program, "Resisting Pressures to Drink and Drive." In the spring of 1984 the entire ninth grade of the Omaha Public Schools participated in the evaluation of this curriculum, which was integrated into the Social Studies course for that semester by Omaha Public Schools curriculum consultants. It was suggested by the OPS administration that the curriculum be taught in social studies classes because social studies was required of all ninth grade students. About half the social studies classes were presented with curriculum materials and served as the experimental group; the other classes were not taught the curriculum, and served as a control group. The control classes were administered both pretest and posttest that spring at the same time as the experimental group. Both groups also were administered the one year follow-up.

The details of the theoretical basis of the curriculum, the curriculum development and pilot testing process, and the results of the first year evaluation of the ninth grade Social Studies classes, are reported in Prevention Center Paper Technical Report No. 14, ***Teaching Students to Resist Pressures to Drink and Drive: First Year Evaluation, Social Studies Classes.***

This report, Technical Report No. 16, ***Teaching Students to Resist Pressures to Drink and Drive: Second Year Evaluation, Social Studies Classes,*** evaluates the effects of the curriculum after one year, in the spring of 1985. The follow-up test was scheduled for all tenth grade English classes in the Omaha Public Schools, thus maximizing the chances of recapturing students who had been in the ninth grade social studies classes in 1984. For the follow-up analysis only the scores of students who completed all three tests (pretest, posttest and one year follow-up test) were used.

The long-term carry-over effects of the 1984 curriculum were assessed by measuring differences in total scores between the experimental and control groups, differences in knowledge of the physiological effects of alcohol, knowledge of myths about alcohol, and knowledge of strategies to resist pressure to use alcohol. The two groups' perceptions about their own abilities to resist pressures were also measured. Finally, differences in reported drinking and riding with a drinking driver were compared.

As in the first year evaluation, the data were aggregated and analyzed by classroom. The class was used as the unit of measurement because the entire class was the focus of the curriculum and because the class acts as a unit benefitting from the interaction of students through close contact, friendship groups and cliques. The effect of the aggregation of scores by class is to reduce substantially the number of cases (from individual cases to classrooms) and thus provide a very conservative estimate of statistical significance. Thus, differences in scores between experimental and control groups may indicate relevant trends although they may not reach statistical significance.

Total Knowledge Scale Scores

At each testing time, the evaluation instrument consisted of a paper and pencil test of 40 items. Twenty-seven of these measured learning of curriculum information, and correct answers were added together to measure the degree to which classes mastered the information presented. The internal consistency or reliability of this scale was measured at an alpha level of .62 at the pretest, .90 posttest and .85 follow-up. The other items on the evaluation instruments gathered information on demographic characteristics, alcohol-related behavior and students' perceptions of their abilities to resist pressures, and will be discussed in subsequent sections of this report.

The means and standard deviations of the experimental and control groups on the Total Knowledge Scale at the three points in time are shown in Table 2. Scores of both groups went up over time, showing that information was gained due to maturing and other factors not directly related to the curriculum.

In Table 3, the significance of the results for "Time," indicates that both groups' knowledge increased as time passed, regardless of whether they received the curriculum-based educational program. The significance of the result for "TxC" indicates that being in the experimental group meant greater knowledge gains over time. It is this indicator which suggests the curriculum had an important effect. The results of the aggregated repeated measures ANOVA in Table 3 show that the experimental group's increase in total knowledge was significantly greater than that of the control group ($p > .0001$).

TABLE 2
Effects of Curriculm
Total Knowledge of Curriculum Material
Aggregated Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	13.50	.92	12.90	.88
Posttest	17.37	1.43	13.83	1.04
Follow-up	17.71	1.12	15.22	.86
	N=51		N=36	

TABLE 3
Effects of Curriculum
Results of Aggregated Repeated Measures Analysis
Total Knowledge of Curriculum

Source	df	ms	f	prob.
Between:				
Condition (C)	1	308.87	119.47	.0000
Error	85	2.59		
Within:				
Time (T)	2	241.41	526.86	.0000*
T x C	2	46.88	102.31	.0000*
Error	170	.45		

*p < .0001

Specific Knowledge Scales

Three knowledge scales were developed using items from the test instrument: 1) knowledge of the physiological effects of alcohol; (2) knowledge to refute common myths about alcohol; and (3) knowledge of strategies to resist pressures to drink or accompany a driver who had been drinking. Students' knowledge of these three areas was measured immediately before the curriculum was taught, immediately afterward, and approximately one year later.

Physiological Effects of Alcohol

Eleven items measured the knowledge of the physiological effects of alcohol. The reliability of this scale was measured at an alpha level of .63 for the pretest, .88 for the posttest, and .80 for the follow-up test. The means and standard deviations for the experimental and control groups at the three points in time are shown in Table 4. The results of the aggregated repeated measures ANOVA are shown in Table 5. Again, the results for "Time" indicate that both groups' knowledge increased as they matured. "TxC" measures an interaction between time and the experimental condition and shows that those students who received the curriculum learned it, and displayed significantly greater knowledge ($p < .0001$) than the control group, even one year later.

TABLE 4
Knowledge of Physiological Effects of Alcohol
Aggregated Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	5.68	.53	5.32	.53
Posttest	7.68	.74	5.65	.61
Follow-up	7.69	.58	6.49	.53
	N=51		N=36	

TABLE 5
Effects of Curriculum
Results of Aggregated Repeated Measures Analysis
Knowledge of Physiological Effects of Alcohol

Source	df	ms	f	prob.
Between:				
Condition (C)	1	90.63	106.10	.0000
Error	85	.85		
Within:				
Time (T)	2	57.53	397.62	.0000*
T x C	2	14.70	101.60	.0000*
Error	170	.14		

*p >.01

Alcohol Myths

The curriculum also corrected students' knowledge about alcohol myths. The reliability, or internal consistency of this seven-item scale showed an alpha of .33 at pretest, .63 at posttest and .65 at the follow-up test. Examination of the means and standard deviations (Table 6) and the results of the repeated measures ANOVA (Table 7) show that here again, although both groups were more knowledgable about widespread myths about alcohol as time passed, the group which received the curriculm made significantly greater gains in knowledge about myths between the pretest and the follow-up one year later ($p < .0001$) over the control group.

TABLE 6
Effects of Curriculm
Knowledge of Myths About Alcohol
Aggregated Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	2.85	.40	2.63	.31
Posttest	4.30	.47	2.82	.35
Follow-up	3.86	.57	2.89	.40
		N=51		N=36

TABLE 7
Effects of Curriculm
Knowledge of Myths About Alcohol
Results of Aggregated Repeated Measures Analysis

Source	df	ms	f	prob.
Between:				
Condition (C)	1	50.56	138.91	.0000
Error	85	.36		
Within:				
Time (T)	2	15.77	154.57	.0000*
T x C	2	8.43	82.60	.0000*
Error	170	.10		

p* < .0001

Strategies to resist pressures.

New in this curriculum was the objective to teach specific resistance strategies. An eight-item scale was developed to estimate knowledge about specific resistance skills. This scale had a reliability alpha of .54 at posttest and .43 at followup. The means and standard deviations (Table 8) and the results of the repeated measures ANOVA (Table 9) show that all students' knowledge increased over time, but the students taught the curriculum again made significantly greater gains in their knowledge of ways to resist pressures than the control group ($p < .0001$).

TABLE 8
Effects of Curriculum
Knowledge of Strategies for Resisting Pressure
Aggregated Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	4.30	.36	4.19	.33
Posttest	5.19	.47	4.52	.41
Follow-up	4.90	.46	4.31	.47
	N=51		N=36	

TABLE 9
Effects of Curriculum
Knowledge of Strategies for Resisting Pressures
Results of Aggregated Repeated Measures Analysis

Source	df	ms	f	prob.
Between:				
Condition(C)	1	13.45	43.06	.0000
Error	85	.31		
Within:				
Time (T)	2	7.89	70.43	.0000*
T x C	2	1.92	17.10	.0000*
Error	170	.11		

*p < .0001

Perceived Ability to Resist Pressures

Ultimately, knowledge of a strategy is of little value unless that strategy is carried out. It was hoped that the curriculum, in addition to increasing the number of students who knew actual resistance strategies, would also increase students' perception of their own abilities to use these skills.

Students' perception of their own ability to resist pressures to drink or ride with a drinking driver was measured with a five-item scale with a pretest internal consistency alpha of .80, a posttest alpha of .76, and a follow-up alpha of .83. The means and standard deviations (Table 10) and the repeated measures ANOVA (Table 11) suggest that the level of both groups' faith in their own abilities to withstand pressure increased somewhat over time, and that these increases were significant.

However, although the experimental group's perceived ability scores increased more than the control group's, this difference was significant only at the .07 level, rather than at the high level recorded for the other scales.

TABLE 10
Perceived Ability to Resist Pressures
To Drink or Ride with a Drinking Driver
Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	18.58	1.03	18.75	1.00
Posttest	19.56	1.08	19.23	.92
Follow-up	20.32	.75	20.15	.87
	N=51		N=36	

TABLE 11
Effects of Curriculum
Perceived Ability to Resist Pressures
To Drink or Ride with a Drinking Driver
Results of Aggregated Repeated Measures Analysis

Source	df	ms	f	prob.
Condition (C)	1	.790	.44	.5077
Error	85	1.785		
Within:				
Time (T)	2	51.92	109.18	.0000*
T x C	2	1.32	2.80	.0649**
Error	170	.48		

*p < .0001 **p >.10

Behavior

Several items on the test instrument measured self-reported drinking behavior and riding with a drinking driver. While affecting the behavior of students is not often the stated goal of much public school curricula (teachers of history, social studies, English, algebra, and the like are not held accountable for students' behavior, but for the amount of knowledge their students acquire), it was nonetheless hoped that knowledge of the physiological facts and knowledge of resistance strategies would influence students' self-reported behavior regarding alcohol.

Drinking. One item asked whether students had ever consumed an entire glass of beer, wine, or liquor. Two more items inquired about alcohol used in the last 30 days and at the last "party." These items were used to measure current drinking behavior. Percentages/means for the pretest, posttest and follow-up on all three items are shown in Table 12.

TABLE 12
Changes in Drinking Behavior Pretest to Posttest as shown by Percentages or Aggregated Means

	Experimental Group	Control Group
Percentage reporting having consumed at least one glass of alcohol (based on individual responses)		
Pretest	64.9%	68.5%
Posttest	68.0%	70.5%
Follow-up	79.2%	81.3%
Average number of drinks consumed at last party		
Pretest	1.64	1.90
Posttest	1.86	2.11
Follow-up	2.46	2.63
Average number of times (frequency of drinking) in last month		
Pretest	1.64	1.88
Posttest	2.34	2.46
Follow-up	3.06	3.43
	N=51	N=36

Between the pretest and one year later there was a marked increase in the percentage of students who had ever consumed at least one glass of alcohol. These percentages increased from 64.9% to 79.2% for the experimental group, and from 68.5% to 81.3% for the control group. Both were significant increases over time. There was no significant difference in the increase of the control group over the experimental group or vice versa. Participating in the curriculum did not appear to affect the extent to which non-drinkers experimented with drinking a full glass of alcohol for the first time.

Also, students within both groups reported more frequent consumption of alcohol within the last thirty days. as well as having more to drink at the last party they attended. However, there were no significant differences in these increases between the experimental and control groups. The repeated measures ANOVAS (not shown here) suggested that at the time of the follow-up the current self-reported alcohol consumption of the experimental group was not significantly less than the control group.

Riding with Drinking Drivers

Finally, one item asked students to report occasions in the last 30 days when they rode in a car with a driver who had been drinking alcohol. The means and standard deviations at pretest, posttest, and follow-up are shown in Table 13 and suggest that the number of students who had ridden with a drinking driver in the last 30 days increased consistently for both the experimental and control groups. However, the repeated measures ANOVA (Table 14) shows that the group exposed to the curriculm reported significantly fewer occasions of riding with a drinking driver. ($p > .05$)

TABLE 13
Times Riding with Drinking Driver, Last 30 Days
Aggregated Means and Standard Deviations

	Experimental Group		Control Group	
	X	SD	X	SD
Pretest	1.01	.74	1.01	.63
Posttest	1.26	.83	1.35	.63
Follow-up	1.48	.79	1.98	1.09
	N=51		N=36	

TABLE 14
Effects of Curriculum
Riding with Drinking Driver Behavior
Results of Aggregated Repeated Measures Analysis

Source	df	ms	f	prob.
Between:				
Condition (C)	1	2.50	2.45	.1213
Error	85	1.02		
Within:				
Time (T)	2	11.08	24.95	.0000*
T x C	2	1.48	3.32	.05**
Error	170	.44		

* p >.0001 **p >.05

It is important to note that curricula based on the principle of educational immunization, as this one was, are not necessarily expected to elicit immediate changes in behavior. Rather, through an increase in knowledge and skills, gradual change in behavior over time is anticipated. Yet, according to the methodology used in this analysis the curriculum did affect risk-taking behavior significantly after one year.

It would seem that the use of these and similar teaching methods, once refined and further critiqued, stand a very good chance of permanently affecting adolescent risk-taking behavior, at least in regard to riding with a drinking driver. The results of a follow-up test performed in the spring of 1986 with a group of students from this curriculum in their ninth grade English classes, rather than social studies classes, are now being analyzed and will be reported in Technical Report 18. These results will compare the outcomes of social studies classes and English classes taught the curriculum with those of controls. Finally, a closer examination of what we have learned of the drinking patterns of these two cohorts of adolescents will be presented in Technical Report 19.

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Curricula

Decisions About Alcohol and Other Drugs: A Curriculum for Nebraska Junior High School Students--Teachers Guide
Resisting Pressures to Drink and Drive (To be used with the videotape series "Resisting Pressures to Drink and Drive")--Teachers Guide
Nebraska Smoking and Tobacco Education Curriculum (To be used with the videotapes "Immediate Effects of Smoking" and "Tobacco...No!")--Teachers Guide

All of these papers are available from the Nebraska Prevention Center for Alcohol and Drug Abuse, Coliseum, Room 226, University of Nebraska, Lincoln, NE 68588-0136.